

CLAIMS

1. A surface inspection apparatus characterized by comprising a light source for applying a light to a surface  
5 of an object to be measured,

an objective lens opposite to the surface of said object to be measured and for receiving a reflected light applied from said light source and reflected on the surface of said object to be measured,

10 light detection means for detecting a component incident on the corresponding objective lens from a parallel direction with its optical axis in the reflected light received by this objective lens and obtaining its light quantity, and

15 a slit provided in the optical path between said objective lens and light detection means.

2. A surface inspection apparatus described in claim 1, characterized in that illumination switchover means  
20 is provided in the light path between said light source and object to be measured, and

this illumination switchover means is to switch over bright-field illumination in which the light from said light source is made parallel with the optical axis of said  
25 objective lens and applied to said object to be measured through said objective lens, and dark-field illumination in which the light from said light source is made ringlike and

applied obliquely with respect to the optical axis of said objective lens such that there is a focus on the surface of said object to be measured.

5           3. A surface inspection apparatus described in claim 1 ~~or 2~~, characterized in that the size of an opening of said slit is changeable.

10           4. A surface inspection apparatus described in ~~any~~ claim 1 ~~of claims 1 to 3~~, characterized in that said light detection means comprises calculation means for converting the light quantity of the light having passed through said slit on the basis of a light quantity detected when a standard sample is used as said object to be measured.

15           5. A surface inspection method characterized in that a surface of an object to be measured is irradiated with a light and the irradiation light is reflected on the surface of said object to be measured,

20           in this reflected light, a component parallel with the optical axis of an objective lens provided oppositely to said object to be measured is made incident on a slit through said objective lens,

25           in this incident light, only a component having passed through an opening of said slit is received, and the light quantity of this received light is obtained.

6. A surface inspection method described in claim 5,  
characterized in that a light detection extent in the  
surface of said object to be measured is controlled by  
5 changing the size of the opening of said slit and the  
magnification of said objective lens, respectively.

7. A surface inspection method described in claim 5  
~~or 6,~~ characterized in that the light quantity of said  
10 received light is converted on the basis of a light quantity  
detected when a standard sample is used as said object to be  
measured.

8. A surface inspection method described in claim 7,  
15 characterized in that the irradiation angle with the light  
to said object to be measured is varied according to the  
surface condition of said object to be measured.

9. A surface inspection apparatus characterized by  
20 comprising a light source for applying a light to a surface  
of an object to be measured,

a tubular member opposite to the surface of said  
object to be measured and for receiving a reflected light  
applied from said light source and reflected on the surface  
25 of said object to be measured,

light detection means for detecting a component  
incident on this tubular member from a specified direction

in the reflected light and obtaining its light quantity, and  
a slit provided in the optical path between said  
tubular member and light detection means.

5 10. A surface inspection apparatus described in  
claim 1, characterized in that the tubular member is an  
optical fiber cable.

10 11. A surface inspection method characterized in  
that a surface of an object to be measured is irradiated  
with a light and the irradiation light is reflected on the  
surface of said object to be measured, in this reflected  
light, only a component in almost one direction is made  
incident on a slit through the tubular member, and, in this  
15 incident light, the light quantity of only a component  
having passed through an opening of said slit is obtained.

20 12. A surface inspection method characterized in  
that a surface of an object to be measured is irradiated  
with a light and the irradiation light is reflected on the  
surface of said object to be measured, this reflected light  
is made incident on a slit through an optical fiber cable,  
and, in this incident light, the light quantity of only a  
component having passed through an opening of said slit is  
25 obtained.

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